

## REMARKS

### File History

In the latest substantive Office action of 3/3/2005 for the present application (*filing date: 10/16/2003*), the following allowances, rejections, objections, requirements and other actions appear to have been made:

- > Claim 16-19, 27-42 were finally restricted out.
- > **Claims 1, 2, 7, 9-11, 13-14, 20-22, 24** were rejected under 35 USC §102(b) as being fully anticipated by Zopf (US 5,607,277).
- > **Claims 1, 2, 7, 9-11, 13-14, 20-22, 24** were also rejected under 35 USC §102(b) as being fully anticipated by Christenson (US 5,938,394).
- > **Claims 3-5, 8, 12, 23, 25-26** were rejected under 35 USC §103(a) as being obvious over either one of Zopf and Christenson as being a matter of design expediency.
- > **Claims 6, 15** were rejected under 35 USC §103(a) as being obvious over either one of Zopf and Christenson as combined with Walker (US 6,632,064 issued 10/14/2003 and based on an application filed 4/22/02).
- > **Claims 1-5, 7-14** were rejected under 35 USC §103(a) as being obvious over Updike (3,762,586 --note corrected last three digits) as combined with either one of Zopf and Christenson.
- > **Claims 6, 15** were rejected under 35 USC §103(a) as being obvious over Updike as combined with either one of Zopf and Christenson and further in view of Walker.
- > **Claims 2, 12, 20-21** were rejected under 35 USC §112 for indefiniteness.

### **Summary of Current Response**

Claims 1, 2, 5-8, 12-15, 20-26 are amended.

Claims 43-76 are newly presented.

Claims 16-19, 27-42 are canceled without prejudice.

Arguments are presented concerning the applied art and its proposed combination or modification.

### **Telephone Interview of April 11, 2006**

Applicant thanks the Examiner for the courtesy of the short telephone interview of 4/11/2006. Discussions were limited to what constitutes the broadest reasonable construction by the PTO of the term "a rear ... wall" as it appears in paragraph (a) of Claim 1 as originally filed. The examiner took the position that this language is broad enough to cover any wall that is rearward of another wall, including covering tunnel wall 38 of the Zopf reference because it is rearward of the container front wall. It was agreed however that pictorially (as opposed to how set forth by the current verbiage of the claims) none of the cited references show the concept disclosed pictorially in the present application. The examiner indicated that conversion of "a rear ... wall" to a "rearmost ... wall" would in all likelihood patentably differentiate the claim at least over tunnel wall 38 of Zopf since clearly wall 38 is not the rearmost.

### **Amended Claim 1 also Distinguishes over Updike**

Not discussed with the Examiner on 4/11/06 was the Updike reference. The PTO was correct in finding that Updike discloses a "combination" (as broadly construed) of a robotic arm (boom 54) and a front load container, although the robotic arm of Updike may not clearly be a side-loading one (however see discussion of 58-60 at col. 3, line 36 and at col. 4, line 18). As the PTO readily admits, the bin of Updike does not have fork-receiving pockets (element 36 is a "tilt arm" --col. 3, line 29).

It is clear that the robotic arm of Updike is not part of a fork-liftable combination that is fork-liftable by virtue of receiving pockets being provided on the bin. The robotic arm (boom assembly 54) of Updike is fixedly mounted to the refuse collection vehicle. Thus

Urdike neither teaches nor suggests the concept of a fork-liftable combination, and in fact teaches away by having his boom assembly 54 fixedly mounted to the refuse collection vehicle. (This is further addressed in a below discussion regarding the PTO's proposal to modify Urdike in order to support a rejection under §103.)

### **Applicants' Overview of Outstanding Office Action**

Applicant sees the outstanding Office action of 3/3/2006 as having the following major features (1)-(3):

(1) Re Zopf '227: Overlooked in the action is the fact that **Zopf** teaches walls 38 to the ordinary artisan as being "tunnel walls" that fully hide the reciprocating robot arm when it is retracted. The tunnel walls extend "parallel to forward wall 38 and **rearward wall 29**", and have a "tunnel cover 39 having downward sloping sides 40, to prevent collection of refuse thereon", and divide the singular "an intermediate container 25". The latter, singular container 25 is defined as "having a [single] bottom 26, a [single] forward wall 28, a [single] rearward wall 29, a [single] curb side wall 30 and [single] street side wall 32 forming a generally rectangular container having an open top." [*Emphasis and bracketed text added.*]

It would only be through hindsight that the ordinary artisan might come to see tunnel wall 38 of Zopf as constituting a rear wall. Otherwise, by use of plain and ordinary language, 29 is the rear wall of Zopf. There is no reasonable way that absent hindsight, an artisan can consider tunnel wall 38 to instead be a rear wall. There is no reasonable process other than by use of hindsight that an ordinary artisan can consider rear wall 29 as a "cage" rather than a rearmost refuse containing wall.

Also, Zopf does not contain the word "mass" (based on electronic search of Zopf for said word). Zopf does not teach or suggest the concept of placing the major mass portion of the robotic mechanism rearward of the rearmost refuse containment wall.

(2) Re Christenson '394: Overlooked in the action is the fact that Christenson, like Zopf, guides the ordinary artisan to placing the robotic mechanism at a central portion of the over all container means into which the robotic arm mechanism can deposit refuse.

(3) Re Updike '586: Overlooked in the action is the fact that Updike further teaches a compacting front bin. Item 50 is a compacting cylinder. Item 36, as already recognized by the PTO, is a tilt arm rather than a fork and pocket.

### Details re Claim 2

The §112 rejection appears to question the "short dump" recited in claim 2. (Recitation of the "other collisions" is removed.) The term "short dump" is described in the specification as a term of art referring to when the driver actuates a tilt of the forks prematurely, before the lifted-over container is fully over-the-top and aligned over the upper opening of the truck's rear hopper such as shown for example by the "fully rotated dump/stow state" 102" of Fig. 1A. In the short-dump case (not shown), the rearmost wall of the conventional container bangs noisily against a closed top portion of the hopper or truck rather than fitting correctly into or over the hopper opening. In a "short dump" scenario, the over-the-top rotation of the main lift arms was not carried out long enough to bring the intermediate container into alignment over the hopper opening and hence the name, short dump. See specification page 4, paragraph [0011]. See also application Fig. 2B (prior art) wherein the "half-rotated dump state" 202b illustrates the position of the container 202 before the forks are rotated to less than 90 degrees relative to lift arm sections 230a, 230c (Fig. 2A). If the container is not properly aligned over the hopper hole (not shown) as the forks rotate from the "leveled lift state" 102' of Fig. 1A towards the fully rotated state 102", then the rear portion of the container can collide with the truck body or hopper front, this resulting in a short dump collision.

In the case of Zopf, it would be rear wall 29 of the container that collides with the truck body during a short dump and not tunnel wall 38 because the tilting forks 21 bring rear wall 29 of the container first towards contact with the truck top if the hopper opening is missed due to premature tilting of the forks. Rear wall 29 of Zopf is a solid "wall" as shown and stated by Zopf and not a "cage".

One of the reasons why it would not have been obvious to ordinary practitioners to place a robot mechanism behind the rearmost wall of an intermediate container is because of the short dump issue. Zopf does not teach to provide a protective "cage" as recited in claim 2. Instead Zopf guides the ordinary artisan by inference to have the rear wall 25 of the container absorb short dump collisions. (Note: definition of "cage" from [www.dictionary.com](http://www.dictionary.com): "1. A structure for confining birds or animals, enclosed on at least one side by a grating of wires or bars that lets in air and light.")

#### Details re Claims 3-5

The outstanding §103 rejection against Claim 3 presumes that either Zopf or Christenson teaches a protective cage to guard against short dumps. It is shown above in the argument for Claim 2, that Zopf teaches to have the rearmost, complete wall of the container crash against the truck during a short dump. There is no motivation for providing protective bars because Zopf's robot mechanism is fully in the middle of his container and no part of it is disposed rearward of the rearmost refuse-containing wall. Thus the rejection against Claim 3 is based on an incorrect reading of Zopf and perhaps a misunderstanding of what a short dump is. Claim 3 calls for the specific structure of a "protective crossbar extending from a left side to a right side of the fork-receiving pocket means". There has been no showing of evidence or motivation from the prior art regarding this specific structure and modifying the Zopf container to include such a structure. Similarly for claims 4-5, there has been no showing of prima facie evidence concerning the specifically recited structures. (Claim 5 is amended to correct an obvious dependency error.)

#### Details re Claim 6

Claim 6 is amended to clarify that the fork-engaging portion includes metal. Support may be found at specification page 39, paragraph [0095] where item 404 is described as "a metal inner sleeve 404 (e.g., stainless steel) that is elastically supported within an outer pocket member 405. Elastomeric pads 403 are interposed between each inner sleeve 404 and outer pocket member 405 for absorbing at least some of the mechanical vibrations passing from fork 432" to the container/robotic arm mechanism 402"/450" or vice versa and for converting the absorbed mechanical vibrations into thermal energy."

Walker does not teach or suggest an inner sleeve made of metal. A metallic inner sleeve would add to noise due to collision of the metal forks with the metal inner sleeve. Walker's goal is to minimize noise. Thus Walker teaches away from the concept of having an inner metallic sleeve. Walker teaches that the noise suppressing material make direct contact with the fork.

#### Details re Claim 7

Claim 7 is amended to clarify that the support ribs provide support for that portion of the pocket means which is located rearward of the rearmost wall. A conventional pocket is welded to the side of the intermediate container and it is that welding to the side wall of the container which often gives the pocket strength for better supporting the weight of the container and refuse. However, if the pocket is extended rearward of the rearmost back wall of the container, there is no continuation of the container at that more rearward position for welding of the pocket via a rib to the container to so as to reinforce the attachment between pocket and container. Application Fig. 4A shows an example of a triangulating ribs 402g, one of which is rearward of rearmost wall 402b and which attaches to reinforcement side bracket 402e. The cited art does not teach anything of the sort. The unlabeled support ribs of Zopf Figs. 2 and 4 are not disposed rearward of a rearmost refuse containment wall (i.e. Zopf wall 29).

### Details re Claim 8

Claim 8 is amended to clarify that the rear wall is the rearmost wall. With regard to the position taken by the PTO at OA page 5, re claim 8, it is respectfully submitted that such consideration of something as being an "*obvious* design expediency" is neither evidence nor a reasoned position. It is merely a raw conclusion trying to support itself in mid-air by calling the unsupported end result an "obvious" one. In other words, it is circular reasoning with no foundation in fact or reasonably articulated, sound logic. As a consequence, it is respectfully submitted that no prima facie case has been presented against Claim 8.

### Details re Claims 9-11, 12

Given that Claim 1 is amended to recite a rearmost refuse-containing wall, the language of Claims 9-11 inherently places the recited one or more motors rearward of the rearmost wall. Neither of Zopf or Christenson teaches or suggests such an arrangement. Moreover, with regard to the grasping motor of Claim 11, note that Zopf cylinder 48 is not rearward of a wall. It is in alcove 33 as seen in Fig. 4 and it moves out with the arm as better seen in Zopf Fig. 7c to spread-wise engage with special features 162-163 of refuse can 24. Thus, according to Zopf, the tilting motor of Fig. 7e lifts the mass of expansion cylinder 48 while also tilting the refuse can 24 over the edge of the intermediate container 25.

For Christenson, a similar situation is best seen in Fig. 5 where both grasping cylinder 122 and pivoting cylinder 154 are seen to be located to the side of the container, supported on extension arm 106. This extension arm 106 is not rearward of the rearmost refuse containing wall.

By contrast, Fig. 4D of the present application shows an embodiment where even the mass of the grasper motor 451" is rearward of the rearmost wall. A mechanical linkage such as the camera-shutter-style cable 451c transfers the energy of the rear grasper motor 451" to the grasper 451a. In this way, the mass of the grasper motor is kept behind the rearmost wall and the power of the grasper motor is transferred to the grasper by means of the cable 451c.

With regard to Claim 12, the article "a" was obviously missing and this typographic error is corrected. As is the case with Claim 8, the PTO assertion at OA page 5, re claim 12,

that it is considered (by whom?) as an "*obvious* design expediency" to include a retractable leg is neither evidence nor a logically reasoned position. It is merely a raw conclusion trying to levitate itself by its own bootstraps through the labeling of the end result as "obvious". It is circular reasoning pure and simple with no basis in fact. As a consequence, it is respectfully submitted that no prima facie case has been presented against Claim 12.

#### Details re Claim 13

Claim 13 is amended to clarify that the rear wall is the rearmost wall. It is believed that this clarification overcomes each of Zopf and Christenson when taken alone. With regard to the position taken by the PTO at OA page 6, paragraph 13, re the proposed modification of Updike in view of Zopf or Christenson; it is respectfully submitted that this proposed modification is untenable because it smacks of hindsight picking and choosing.

Replacing item 36 of Updike with a pocket is not enough to make bin 46 of Updike modularly replaceable because Updike calls for a compressible front bin driven by compacting cylinder 50. Cylinder 50 prevents bin 46 from becoming modularly replaceable. The claimed advantage of replace-ability is not enabled by the proposed modification. Moreover, once one starts converting Updike to be more like Zopf or Christenson, why stop at converting only item 36 into a pocket? Updike suffers from the disadvantage that boom 54 can collide with bin 46. So why not completely adopt the alternate arrangement of Zopf or Christenson? That is what an ordinary artisan would have done, completely adopt the arrangement of Zopf or Christenson. By being selective, and by picking and choosing what to modify and what not to modify without reason, the Office action is merely using Applicant's disclosure as a blueprint for converting Updike into a clone of Applicant's invention. Such cherry picking constitutes an impermissible maneuver that can be pulled out rabbit-from-hat style only by drawing from the "tempting but forbidden zone of hindsight" (quoted language appears in a number of Federal Circuit decisions which warn about falling prey to the temptation).

Claim 13 is amended to recite the side-loading robotic arm mechanism as being coupled to the container so as to be lifted with the container when the container is fork-lifted.



Even if the proposed modification of Updike were permissible, it would fail to recreate this aspect of amended Claim 13.

#### Details re Claims 20-21

Claim 20 is amended to clarify that the back surface is the backmost surface of the waste-containment space. It is believed that this distinguishes Claim 20 over any reasonable reading of Zopf or Christenson. With regard to the first §112 rejection/objection against Claim 20, the PTO questions whether the "supplied fork lift means" is a positive limitation. The answer is no. The specification in whole will indicate to one skilled in the art that at least the intermediate container is a modular unit that is removably supported by any one of different garbage trucks or other such vehicles that are supplied by the operator of a waste collection business. The garbage collection vehicles (i.e., trucks) can be used as fork lifts (or other types of lifts {A frame} or collection supports) for other types of jobs (e.g. commercial bins) rather than just for residential side-load pick up which is what makes the arrangement economically attractive. Claim 20 is amended to clarify that the vessel and robot are movable as a unit when supported by a supplied fork lift means. This temporal relation (when) makes it clearer that the supplied fork lift means need not always be there. Thus it is not an essential part of the claimed combination. It is permissible to recite claimed structure in terms of its interoperability with unclaimed structure. See for example, *Orthokinetics Inc. v. Safety Travel Chairs Inc.* 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986) {wheelchair defined in terms of a car entry way into which it fits --"so dimensioned as to be insertable [in an external entity, namely,] doorframe of an automobile"}.

With regard to the second §112 rejection/objection against Claim 20, the use of the "comprising ... consisting" combination is a well established Markush claim drafting format. Applicant is entitled by law to define a Markush group in his claim, in this case, the "interface group" and Markush format requires that the scope of the group be delimited by a "consisting of" or an alike transition phrase.

With regard to the §112 rejection/objection against Claim 21, the claims is amended to better recite pitch as "tilt" and to clarify other terms which may have been confusing. The waste collecting vehicle is not a positive part of the claimed system but rather an additive

framework, which when supplied to the system creates the recited relationships between the system and the supplied framework.

Additional Details re Claims 3-5, 8, 12, 23, 25-26

Paragraph 11 of OA page 5 admits that neither of Zopf and Christenson teaches the use of crossbars and of elastomeric bumpers on such crossbars. The PTO goes on to argue that use of such crossbars would require no undue experimentation and would produce no unexpected results.

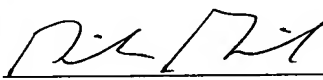
It is respectfully submitted that neither of undue experimentation nor unexpected results is a requirement for patentability. The PTO admits that the features are novel. Additionally, the PTO has produced no evidence or reasoned argumentation for why inclusion of the crossbars would have been "obvious" pursuant to 35 USC §103. As explained above, stating that something is "obvious" and "simply a design expediency" are raw conclusions without any supporting evidence underneath them. All inventions can be capriciously labeled as being "obvious". That per se does not make them obvious under the law. All inventions can be arbitrarily labeled as including "mere design expediciencies". That per se does not make them "mere design expediciencies" not worthy of patentability. It is respectfully not understood how such labeling complies with the requirements of *Graham v. Deere*. It is not understood how the PTO can conclude regarding Claim 23 that both of Zopf and Christenson show a spacing of at least 10 inches. Reconsideration is respectfully requested.

## CONCLUSION

In light of the foregoing, Applicant respectfully submits that the present claims define over the art of record. Should any action other than allowance be contemplated by the Examiner, it is respectfully requested that he contact the undersigned at (408) 392-9250 to discuss the application and see if completion of prosecution can be expedited by telephone discussion.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 50-2257 for any matter in connection with this response, including any fee for extension of time and/or fee for additional claims, which may be required.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on June 5, 2006.

 6/5/2006

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